SIDEWALK HANDRAILING WITHOUT BALUSTERS

4 CROSS SLIDES: 1.0 % MIN. - 3.0 % MAX.

SIDEWALK WITHOUT BUFFER STRIP (SECTION A-A)

1/2" x 4" MIN. x 4" MIN. STEEL PLATE

CONCRETE SIDEWALK

SIDEWALK WITH BUFFER STRIP (SECTION A-A)

1/2" x 4" MIN. x 4" MIN. STEEL PLATE

CONCRETE SIDEWALK

HANDRAILING

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

STATE EFFECTIVITY:

608.40

SHEET NO. 1 OF 4
SIDEWALK SAFETY RAIL WITH BALUSTERS AND HANDRAIL

SIDEWALK WITHOUT BUFFER STRIP (SECTION A-A)

SIDEWALK WITH BUFFER STRIP (SECTION A-A)

FOR GENERAL NOTES AND MATERIAL REQUIREMENTS ON CALL OUTS SEE SHEET 3 OF 4.
HANDRAIL REQUIREMENTS

<table>
<thead>
<tr>
<th>Fill Slope</th>
<th>Fill Height</th>
<th>Handrail</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1V:3H) or flatter</td>
<td>≥ 6 ft.</td>
<td>Required</td>
</tr>
<tr>
<td>(1V:3H) or steeper</td>
<td>≥ 4 ft.</td>
<td>Required</td>
</tr>
<tr>
<td>(1V:2H) or steeper</td>
<td>≥ 1 ft.</td>
<td>Required</td>
</tr>
</tbody>
</table>

RAILING AND POST SPECIFICATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Type</th>
<th>Size (Dia.)</th>
<th>Weight (Lbs./ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Railing &amp; Post</td>
<td>Round</td>
<td>1 1/2&quot;</td>
<td>0.940</td>
</tr>
<tr>
<td></td>
<td>Square</td>
<td>2&quot; x 2&quot;</td>
<td>1.309</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4.310</td>
</tr>
<tr>
<td>Baluster</td>
<td>Round</td>
<td>1/2&quot;</td>
<td>0.2312</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3/8&quot; x 1/2&quot; STL</td>
<td>0.6375</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1/2&quot; x 1/2&quot; ALUM</td>
<td>0.2946</td>
</tr>
</tbody>
</table>

GENERAL NOTES:
- RAILINGS AND POSTS MAY BE EITHER ROUND OR SQUARE STEEL OF GOOD COMMERCIAL WELDABLE QUALITY OR ALUMINUM ALLOY 6061-T6 OR 6063-T6.
- STEEL RAILINGS AND POSTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M11.
- ALL JOINTS SHALL BE CONTINUOUS WELDED AND GROUND SMOOTH.
- METAL SAFETY RAIL MUST BE COMPLIANT WITH THE "AMERICAN'S WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG)". EXCEPTIONS MUST BE APPROVED BY THE ENGINEER. ALL OTHER AREAS OF NON-COMPLIANCE SHALL BE REMOVED AND CORRECTED AT THE CONTRACTOR'S EXPENSE.
- WHEN INSTALLED THE POSTS SHALL BE PLUMB AND RAILINGS SHALL MATCH THE SLOPE OF THE SIDEWALK.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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HANDRAILING

DATE EFFECTIVE: 04/01/2015
DATE PREPARED: 02/28/2016
608.40 SHEET NO. 3 OF 4
HANDRAIL AND EXTENSION CONNECTION

HANDRAIL GRIPPING SURFACES

CIRCULAR CROSS SECTION

- $4" - 6\frac{1}{2}"$ PERIMETER MAX.

NON-CIRCULAR CROSS SECTION

- $4" - 6\frac{1}{2}"$ PERIMETER MAX.

HANDRAIL NOTES:

- Handrails shall be steel of good commercial weldable quality or aluminum alloy 6061-T6 or 6063-T6.
- Handrails shall be galvanized after fabrication in accordance with AASHTO M111.
- Handrails shall be at a consistent height above walking surfaces.
- Handrail gripping surfaces shall be continuous along their length and shall not be obstructed along their tops or sides.
- The bottoms of handrail gripping surfaces shall not be obstructed for more than 20 percent of their length.
- Where handrails are provided along walking surfaces with slopes not steeper than 1:20, the bottoms of handrail gripping surfaces shall be permitted to be obstructed along two equal lengths of handrail where integral handrail sections are used.
- The distance between horizontal projections and the bottom of the gripping surface shall be permitted to be reduced by $\frac{1}{2}"$ for each additional handrail perimeter dimension that exceeds $4"$.
- Handrail surfaces and any surfaces adjacent to such shall be free of sharp or abrasive elements and shall have rounded edges.
- Handrails shall not rotate within their fittings.

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